AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1.(original) Apparatus for the characterisation of pigmented skin lesions, characterised in that it comprises:

- o means designed to acquire images of the lesion, filmed with lighting at different wavelengths;

- o means designed to segment and parameterise each of said images;

- o means designed to extrapolate a data set from said images;

- o means designed to generate a neural network;

- o means designed to process the data relating to a set of known cases and define a threshold value on the basis of said processing;

- o means designed to input said data extrapolated from said images into the neural network;

- o means designed to compare the results processed by said neural network with said threshold value;

- o means designed to vary the weighting of each parameter supplied to the neural network on the basis of said results.

2.(original) Apparatus for the characterisation of pigmented skin lesions as claimed in claim 1, characterised in that it comprises:

- o means designed to process images filmed with light at different wavelengths to extract the descriptors of the lesion;

- o means designed to reduce the number of said descriptors

by factorial analysis in order to select a limited number of variables which retain over 85%, and preferably at least 95% of the variance.

3. (original) Apparatus for the characterisation of pigmented skin lesions as claimed in claim 1, characterised in that it comprises means designed to store an archive containing the values of the descriptors relating to all the images stored, and means designed to normalise the values of said descriptors by means of a function of the following type:

$$i'_n(m) = \frac{i_n(m)}{i_{n,\max} - i_{n,\min}} + \frac{i_{n,\min}}{i_{n,\min} - i_{n,\max}}$$

wherein $i_{n,min}$ and $i_{n,max}$ are the minimum and maximum value respectively of each descriptor n, among all the values of the lesions previously acquired.

4. (original) Apparatus for the characterisation of pigmented skin lesions as claimed in claim 2, characterised in that said means designed to film images of the lesion consist of a video camera associated with an illuminator comprising a light source and a rotating mirror with diffraction grid and means designed to control the rotations of said mirror to vary the wavelength of the light, said video camera being fitted with sensors designed to film a black and white image which are sensitive to wavelengths of light between 480 and 1000 nanometers, and sensors designed to film a colour image of the lesion.

5. (currently amended) Apparatus for the characterisation of pigmented skin lesions as claimed in ~~claims 3 and 4~~ claim 3, characterised in that it comprises means designed to obtain from said images, for each lesion, at least the dimensions, variegation, reflectance in the visible and infra-red light

zones, the presence of dark patches and the ratio between the area of the dark patches and the rest of the lesion.

6.(currently amended) Apparatus for the characterisation of pigmented skin lesions as claimed in ~~each of the preceding claims~~ claim 1, characterised in that it comprises:
- means designed to select a lesion;
- means designed to vary the value of each descriptor by assigning to it a set of values which fall within a pre-determined interval, the values of all the other descriptors being maintained unchanged;
- means designed to input said values into the neural network to generate an output value, and means designed to construct a curve with said output values;
- means designed to display a point on said curve corresponding to the value actually measured by the descriptor represented in said curve; and
- means designed to display on a graph the intersections of said curve with a line representing said threshold value.

7.(original) Apparatus for the characterisation of pigmented skin lesions as claimed in claim 6, characterised in that it comprises means designed to show geometrical parameters, such as the distance between said threshold value and said point and/or the area under the curve in the zone between said threshold and said point, on one of the axes of the graph, and to derive from said measurement a value indicating the influence of a variation in one of the descriptors on the classification of a lesion.